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**Course Outline  
 Crolancia Secondary School  
Keewatin Patricia District School Board  
 Teacher: Mr. MacMillan  
 2012-2013**

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| Course | Foundations of Mathematics |
| Grade | 10 Applied |
| Course Code | MFM2P |
| Curriculum | The Ontario Curriculum Grades 9 and 10 |
| Credit Value | 1.0 |
| Prerequisite | None |
| Textbook and Reference Materials | McGraw-Hill Ryerson: Foundations of Mathematics 10  www.oame.on.ca |
| Course Website | [www.mrmacmillanmath.wikispaces.com](http://www.mrmacmillanmath.wikispaces.com) |

**Course Description:**This course enables students to consolidate their understanding of linear relations and extend their problem-solving and algebraic skills through investigation, the effective use of technology, and hands-on activities. Students will develop and graph equations in analytic geometry; solve and apply linear systems, using real-life examples; and explore and interpret graphs of quadratic relations. Students will investigate similar triangles, the trigonometry of right triangles, and the measurement of three-dimensional ﬁgures. Students will consolidate their mathematical skills as they solve problems and communicate their thinking

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| **Teaching Strategies** | **Accommodations** |
| * Integrate technological tools and software where appropriate * Use a balance of whole-class, small groups and individual instruction through student-centred and teacher directed activities * Use a variety of instructional methods to address a variety of learning styles (self-discovery hands-on activities, teacher instruction, peer instruction) * Provide extra help for students who may require one on one contact | * Extra time for tests, quizzes, exams and assignments * Flexibility for handing in assignments due to school related activities * Consideration of individual learning styles * IEP specific accommodations |

**Assessment and Evaluation Strategies and Techniques**

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| **Pen and Paper** | **Performance Assessment** | **Personal Communication** |
| * Quizzes * Tests * Exams * Charts and Diagrams | * Lab Reports * Presentations * Assignments * Experiments | * In-class questioning * Homework * Journal * Student-teacher conferences * In-class discussions |

**Assessment and Evaluation:**

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| **Category** | **Weight** |
| **Knowledge & Understanding** – *Subject-specific content acquired in each course (knowledge) and the comprehension of its meaning and significance (understanding)*   * Evaluation in this category may include but is not limited to quizzes, tests, in-class question and answer, group work, presentation, problem assignment etc. | 30% |
| **Application** – *The use of knowledge and skills to make connections within and between various contexts*   * Evaluation in this category may include but is not limited to tests, in-class problems, take-home project, etc. | 20% |
| **Thinking** – *The use of critical and creative thinking skills and/or processes*   * Evaluation in this category will derive primarily from in-class “TIPS” assignments but may include, critical analysis questions, extended answer problems etc. which may or may not be part of a test. | 10% |
| **Communication** – *The conveying of meaning through various forms*   * Evaluation in this category may include but is not limited to the proper use of mathematical symbols and terminology, the presentation format of solutions on tests etc., oral and/or written presentations and explanations of mathematical theorems, problem solutions and concepts etc. | 10% |
| **Summative**   * Performance Assessment Task * Final Examination | 30% |

**Unit and Lesson Breakdown**

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| **Unit** | **Description** | **Time and Sequence** |
| 1 | **Linear Systems**  Linear relationships are not only important to understand for everyday used – understanding the interplay between distance in time for the calculation of speed, or rates of change in business, for example – but they are also foundational to more complex forms of mathematics. This unit reviews the concepts of linear algebra that were developed in Grade 9, and expands upon important procedures such as rearranging equations and developing accurate graphs. | 16 Hours |
| 2 | **Analytic Geometry** Expanding upon the foundation built in the last unit, the equations of lines and line segments will be examined. Developing logical and mathematical methods for determining line segment length and midpoint, based upon an equation or upon coordinates, will enable a deeper study of geometric shapes & properties. | 16 Hours |
| 3 | **Algebraic Skills** To progress beyond a certain point in any mathematics, some rather advanced algebraic skills must first be mastered. In this unit, students will consider various operations on monomials, binomials and polynomials. Factoring of binomials and trinomials will be studied. | 16 Hours |
| 4 | **Quadratic Functions** Until this point, all algebraic relations that have been considered have been linear. In this unit, second-order functions are introduced. The concept of the function will be studied; the domain, range and simple transformations of quadratic functions will be explored; and students will learn how to “complete the square”. | 16 Hours |
| 5 | **Quadratic Equations** Having explored quadratic functions graphically, the algebra of quadratic equations will be considered. The Quadratic Formula, which will be used extensively throughout all future math courses, will be derived and used. | 22 Hours |
| 6 | **Trigonometry** Triangles have a particularly significant role to play in mathematics. This unit is all about triangles and how they can be used to describe many phenomena in the universe. A review of Pythagorean Theorem will start the discussion, which will lead the student through sine, cosine and tangent ratios, the sine law and cosine law, and the ability to solve problems using these tools. | 22 Hours |
|  | **Final Examination** The final assessment task is a two hour proctored examination worth 30% of the student's final mark. | 2 Hours |

By signing below means I have read and understand all components of this course, the expectations of my son/daughter and the criteria of which they will be evaluated on. If you have any questions feel free to contact the school at **928-2381 Ext 2106** or by email at **jason.macmillan@kpdsb.ca**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Signature of Student) (Date)

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(Signature of Parent/Guardian) (Date)